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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,624	08/28/2001	Robin U. Roberts	MESH019	4515

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INTELLECTUAL PROPERTY SECTION
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EXAMINER	
GENACK, MATTHEW W	
ART UNIT	**PAPER NUMBER**
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/939,624	ROBERTS, ROBIN U.	
	Examiner	Art Unit	
	Matthew W. Genack	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 39, 43-44, 46-47, 51-53, and 57-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogier *et. al.*, U.S. Patent No. 6,845,091.

Regarding Claims 39 and 52, Ogier *et. al.* discloses a wireless ad hoc multi-hop network comprised of a plurality of mobile nodes (Abstract, Column 3 Lines 7-28, Fig. 1). Each of the plurality of nodes may operate in an off mode and a sleep mode (Column 15 Lines 23-29). Each node maintains a neighbor table that contains an entry for each neighboring node and its operational state; these operational states are lost, heard, and symmetric; in the lost state, the neighboring node is either in the sleep or off mode or out of range (off state), in the heard mode, the neighboring node is turned on and has transmitted a HELLO message, but it may not be able to hear its neighboring nodes (which would qualify as an active, non-relay state), and in the symmetric mode, the node and its neighbor can heard each other (active, relay state) (Column 29 Lines 15-40, Table 3).

Regarding Claims 43-44, 53, and 57, a node is informed of the operational states of its closest neighbors (Column 30 Lines 1-60).

Regarding Claims 46-47 and 58-59, when a node is in the lost operational state (due to being in sleep mode, or out of range, *etc.*), it is both a non-infrastructure component and a non-group member, in that it is isolated from the rest of the ad hoc nodes (Column 29 Lines 19-31).

Regarding Claim 51, each node comprises a topology table that stores details of connections to said node's neighbors (Column 10 Lines 7-21).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 40-41, 45, and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogier *et. al.* in view of Orava, U.S. Patent Application Publication 2002/0071477.

Ogier *et. al.* does not expressly disclose that the operational state of each respective node is determined using configuration information received from their respective users and neighboring nodes.

Orava discloses a wireless device, a plurality of which are used in an ad hoc network, the plurality of wireless devices acting as nodes connected to each other (Abstract, [0016], [0020], Figs. 1-3). Each wireless device may operate in one of several states, including a standby state and a connection state, whereby in order to establish a connection route, a wireless device discovers other wireless devices in its

area that are available ([0043]-[0049], Fig. 6). When a wireless device is attempting to make a connection, it is in an inquiry substate, and it receives user information and network information in the form of Bluetooth device addresses and clock information of all wireless devices that respond to the inquiry; the master determines which wireless devices are in the default standby state, and therefore, available as slaves ([0044]-[0045], [0047]).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Ogier *et. al.* by providing for nodes that have operational states that are determined by configuration information received from their respective users and neighboring nodes.

One of ordinary skill in the art would have been motivated to make this modification in order to facilitate the establishment of new connections (Orava: [0044]).

5. Claims 42 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogier *et. al.* in view of Susnow *et. al.*, U.S. Patent Application Publication 2002/0159385.

Ogier *et. al.* discloses the ability for a node to be in a state that is active and non-relay, as outlined above.

Ogier *et. al.* does not expressly discloses the reception, by a wireless device node, of credits for the relaying of packets.

Susnow *et. al.* discloses the use of flow control credits in the transmission of data packets in a wireless network, and the comparison of the current number of accumulated credits with a credit threshold, in the context of data sent from a source

node to a destination node by way of intermediate nodes in a wireless network ([0017], [0037], [0071]).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Ogier *et. al.* by providing for the reception, by a wireless device node, of credits for the relaying of packets, and the comparison of the current number of credits of that node with a maximum number of credits allocated for that node.

One of ordinary skill in the art would have been motivated to make this modification so as to prevent any one node from being inundated with an excessive number of packets to be relayed (Susnow *et. al.:* [0071]).

6. Claims 48-50 and 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogier *et. al.*, further in view of Larsen *et. al.*, U.S. Patent No. 6,810,428.

Ogier *et. al.* discloses the use of laptop and desktop computers as the nodes, which may be line powered (Column 5 Line 58 to Column 6 Line 7).

Ogier *et. al.* does not expressly discloses the grouping of wireless device nodes by class, a class being selected from the group of classes comprising nodes connected to line power, nodes with a high remaining battery life, nodes with the least interference, nodes with the least available energy, and high performance nodes.

Larsen *et. al.* discloses a wireless communications network comprised of multiple mobile terminals, along with a method of operating such a network (Abstract,

Column 1 Lines 30-35, Fig. 1). The user terminals comprise transceivers that are able to transmit wireless communications data to destination user terminals or receive wireless communications data from destination user terminals by way of intermediate user terminals in the same network (Column 4 Lines 34-37 and 51-63, Column 5 Lines 4-9, Fig. 1). The user terminals comprise controllers that are able to allow or prevent the transmission of said wireless communications data based on routing data related to the powers required for transmission, powers available for transmission, connection quality, and the potential levels of interference between neighboring user terminals (Abstract, Column 1 Lines 40-45 and 64-66, Column 2 Lines 15-38, Column 4 Line 65 to Column 5 Line 3, Column 16 Lines 53-61, Column 25 Lines 26-35).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Ogier *et. al.* by grouping nodes by class, a class being selected from the group of classes comprising nodes connected to line power, nodes with a high remaining battery life, nodes with the least interference, nodes with the least available energy, and high performance nodes, whereby an immediate neighbor node is set to either the connection state or the standby state when a node belongs to one of these classes.

One of ordinary skill in the art would have been motivated to make this modification because required power levels, available power, and interference are common concerns in wireless networks, especially ad hoc wireless networks, which involve low power devices and data being sent via several links.

Response to Arguments

7. Applicant's arguments with respect to the Claims have been considered but are moot in view of the new grounds of rejection necessitated by Applicant's amendments, filed 16 July 2007.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Genack whose telephone number is 571-272-7541. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew Genack

Examiner

TC-2600, Division 2617

Matthew Genack

25 September 2007

DUC M. NGUYEN
SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2600